

Implementation Planning: Greenvale & Beach Creeks Shellfish TMDL

Impaired due to Bacteria – A Review

First Public Meeting

April 8, 2009
Lancaster, VA



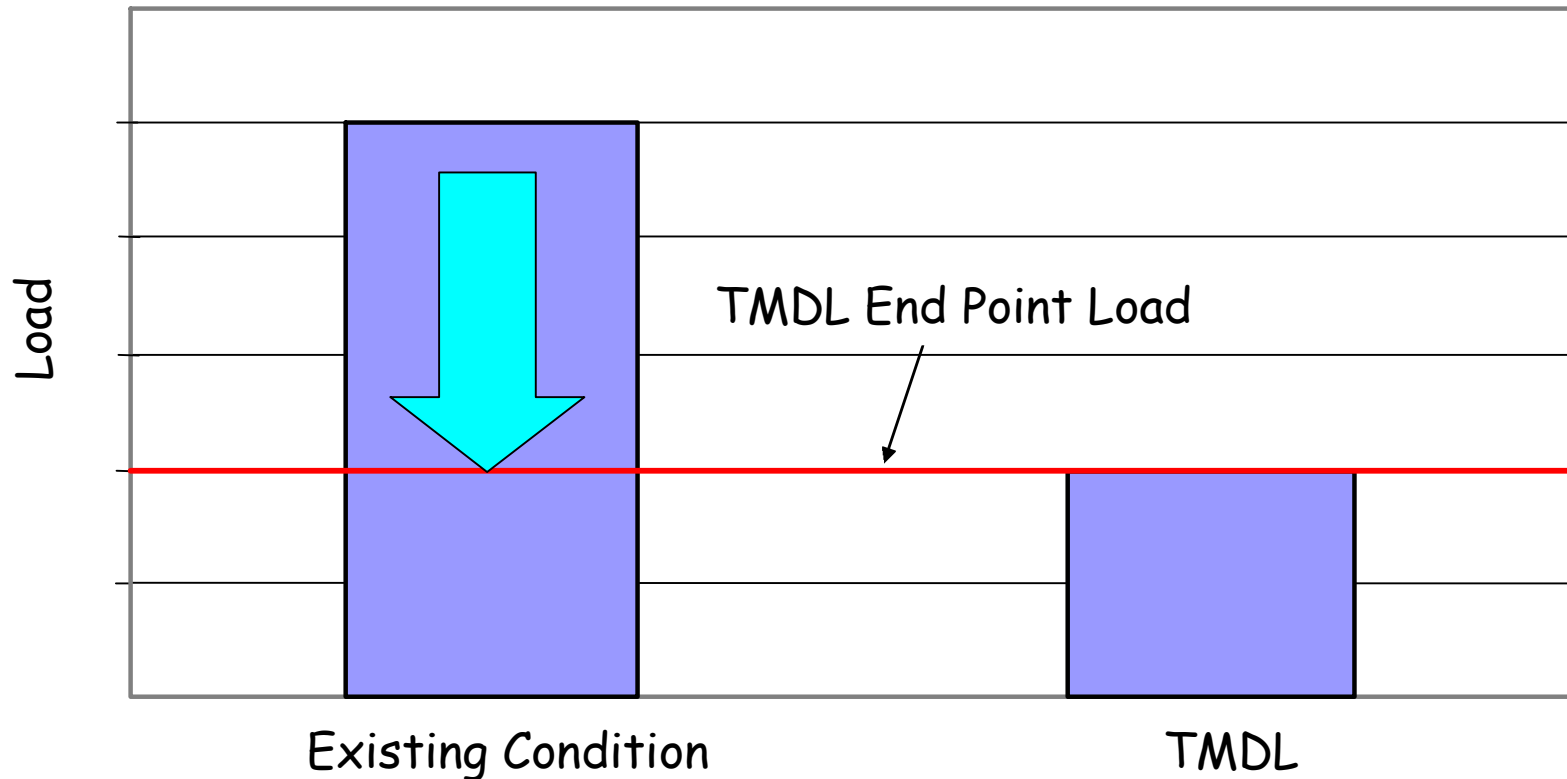
What is a TMDL?

TMDL = Total Maximum Daily Load =
maximum amount of a pollutant that
can exist in a water body without
violating water quality standards (WQS)



WQS = numeric or narrative limits on
pollutants that ensure the protection of
human health and of aquatic life

A Visual Example of a TMDL...



Reducing existing bacteria load to the TMDL end point load is expected to restore water quality.

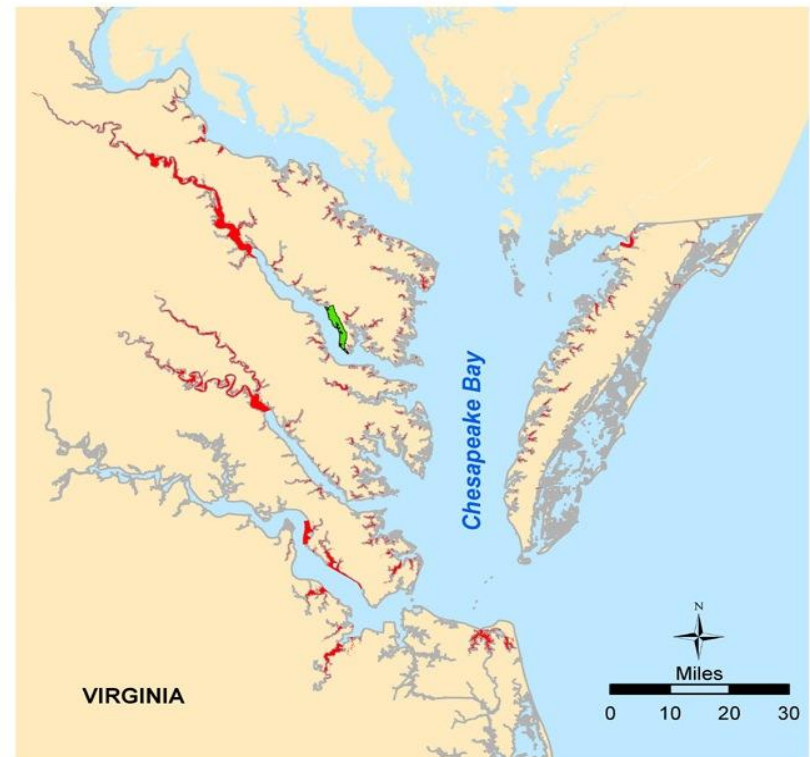
Why are TMDL studies necessary?

- ❑ TMDLs must be developed for water bodies that do not meet water quality standards (impaired waters).
 - Clean Water Act 1972
 - American Canoeist Association lawsuit - Consent Decree 1999
- ❑ Impaired waters occur throughout Virginia in lakes, streams, and tidal waters.
 - In Virginia, TMDLs for 210± impaired waters must be developed by 2010.
 - ❑ VA DEQ developed and EPA approved 189 shellfish TMDLs by 5/1/08
 - ❑ There are >1700 TMDLs to be done by 2020

Shellfish TMDL Completed in 2006...

- TMDL was developed by DEQ in 2004-2006 based on 1998 VDH-DSS Condemnations
 - Greenvale Creek
 - Beach Creeks
 - TMDL did not look at Paynes Creek (Condemned 4/25/07)
- Approved by EPA on 8/2/06 and by SWCB on (6/27/07)

Total Maximum Daily Load (TMDL) Report for Shellfish Areas Listed Due to Bacterial Contamination Rappahannock River: Towles Point to Deep Creek



Rappahannock River: Towles Point to Deep Creek

Condemnation Zones



Miles

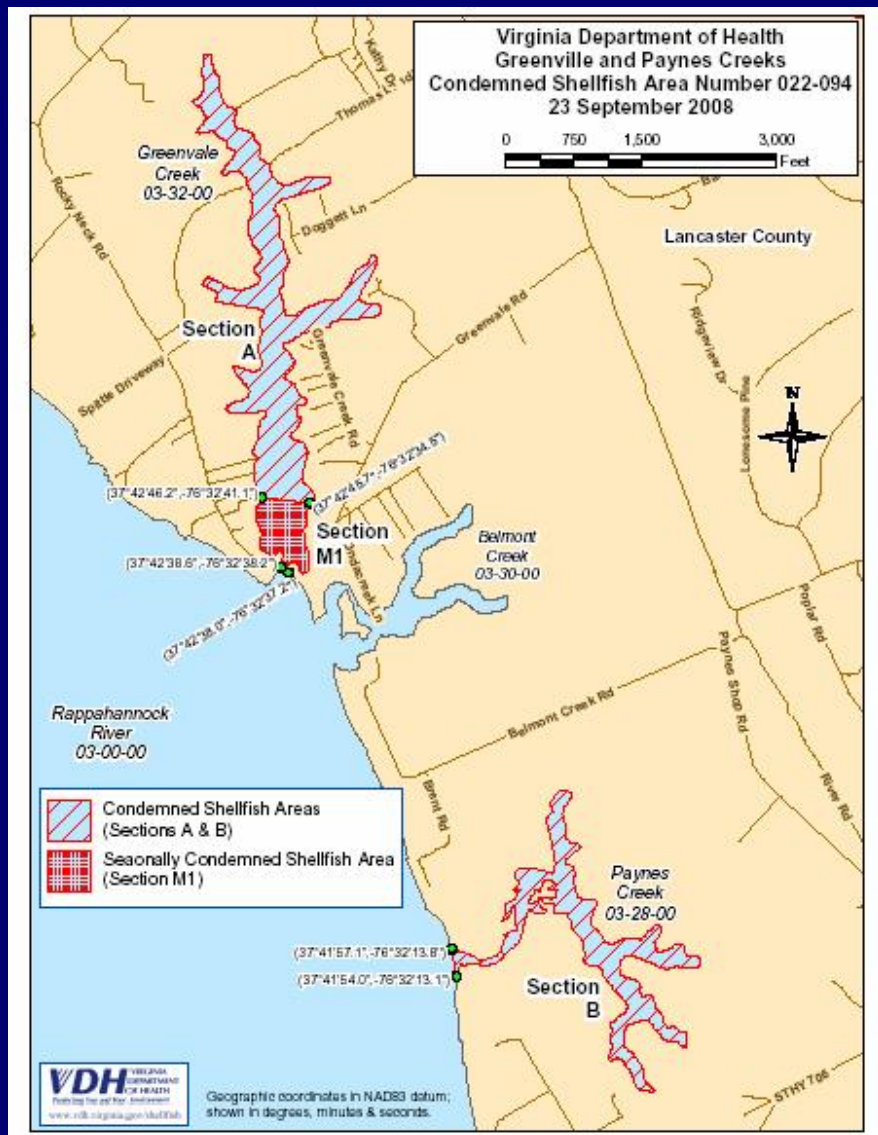
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From Approved
TMDL Report

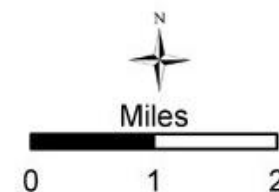
Data Source: Division of Shellfish Sanitation, VA Dept. of Health, 1998
Digital Line Graphs, U.S. Geological Survey, 1999
Map Date: June, 2004

Condemnations within Growing Area 22 have expanded to include Paynes Creek – condemned by VDH on 4/25/07

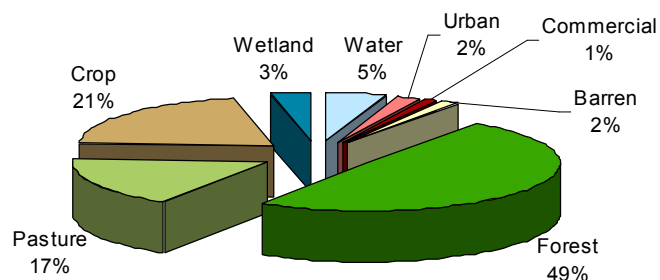


Rappahannock River: Towles Point to Deep Creek

Land Use/Land Cover



Land Use Distribution
Rappahannock River: Towles Point to Deep Creek



Data Source: National Land Cover Data Set, U.S. Geological Survey, 1999
 Digital Line Graphs, U.S. Geological Survey, 1999
 Map Date: June, 2004

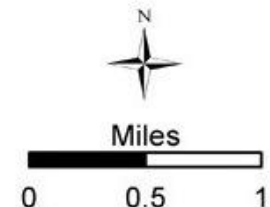
VDH-DSS Monitoring Stations in Greenvale, Beach, and Paynes Creeks



Rappahannock River: Towles Point to Deep Creek

Condemnation Zones and Water Quality Monitoring Stations

- Water Quality Monitoring Stations
- # Station Identification Number
- condemned
- land
- water



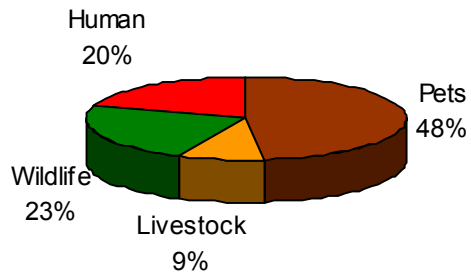
Water Quality Data Summary for Greenvale, Beach, and Paynes Creek

90th Percentile represents the more stringent reduction

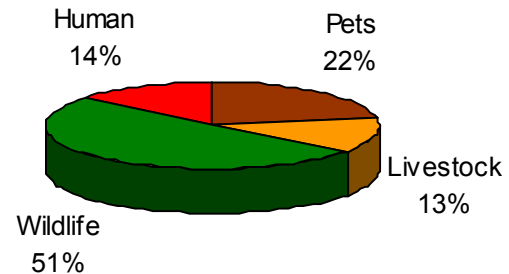
Station	Condemnation Area	Total Observations (one/Month)	Geometric Mean	Station Violates Geometric Standard: 14 MPN	90 th Percentile	Station Violates 90th Percentile Standard: 49 MPN
22-1	Wyatt Cr	167	7.3	No	39.2	No
22-10	Greenvale Cr	172	22.2	Yes	163.7	Yes
22-11	Greenvale Cr	172	34.5	Yes	346.9	Yes
22-12	Greenvale Cr	167	57.6	Yes	413.6	Yes
22-3	Beach Cr	152	13.4	No	77.1	Yes
22-6	Paynes Cr	166	26.7	Yes	293.5	Yes
22-9	Greenvale Cr	171	10.8	No	49.3	Yes

BST Results for Greenvale and Beach Creeks

**Mean Fecal Coliform Contribution by BST
Greenvale Creek**



**Mean Fecal Coliform Contribution by BST Beach
Creek**



Greenvale Creek H+L+P = 77%

Beach Creek H+L+P = 49%

Reduction and Allocation based on 90th Percentile Standard Greenvale & Beach Creeks

Condemnation Area	Source	BST Allocation % of Total Load	Current Load MPN/ day	Load Allocation MPN/ day	Reduction Needed
94 Greenvale Creek	Wildlife	23%	5.09E+10	4.28E+10	16%
	Human	20%	4.43E+10	0.00E+00	100%
	Livestock	9%	1.99E+10	0.00E+00	100%
	Pets	48%	1.06E+11	0.00E+00	100%
	Total	100%	2.21E+11	4.28E+10	81%
116 Beach Creek	Wildlife	51%	1.49E+10	1.49E+10	0%
	Human	14%	4.09E+09	1.23E+08	97%
	Livestock	13%	3.80E+09	3.80E+09	0%
	Pets	22%	6.42E+09	6.42E+09	0%
	Total	100%	2.92E+10	2.52E+10	14%

Questions?? Comments??

Approved Report Link:

<https://www.deq.virginia.gov/TMDLDataSearch/DraftReports.aspx>

VDH Sanitary Shoreline Survey & Monitoring Data

<http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish>

This presentation available at:

<http://www.deq.virginia.gov/tmdl/ipproj.html>

TMDL Website:

<http://www.deq.virginia.gov/tmdl>

